Volunteer Lake Assessment Program Individual Lake Reports

RAND POND, GOSHEN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	326	**Max. Depth (m):**	8.2	**Flushing Rate (yr^{-1})**	1.4
Surface Area (Ac.):	39	**Mean Depth (m):**	3.4	**P Retention Coef:**	0.66
Shore Length (m):	1,800	**Volume (m^3):**	534,000	**Elevation (ft):**	1257

TROPHIC CLASSIFICATION

Year	Trophic class
1979	OLIGOTROPHIC
1994	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

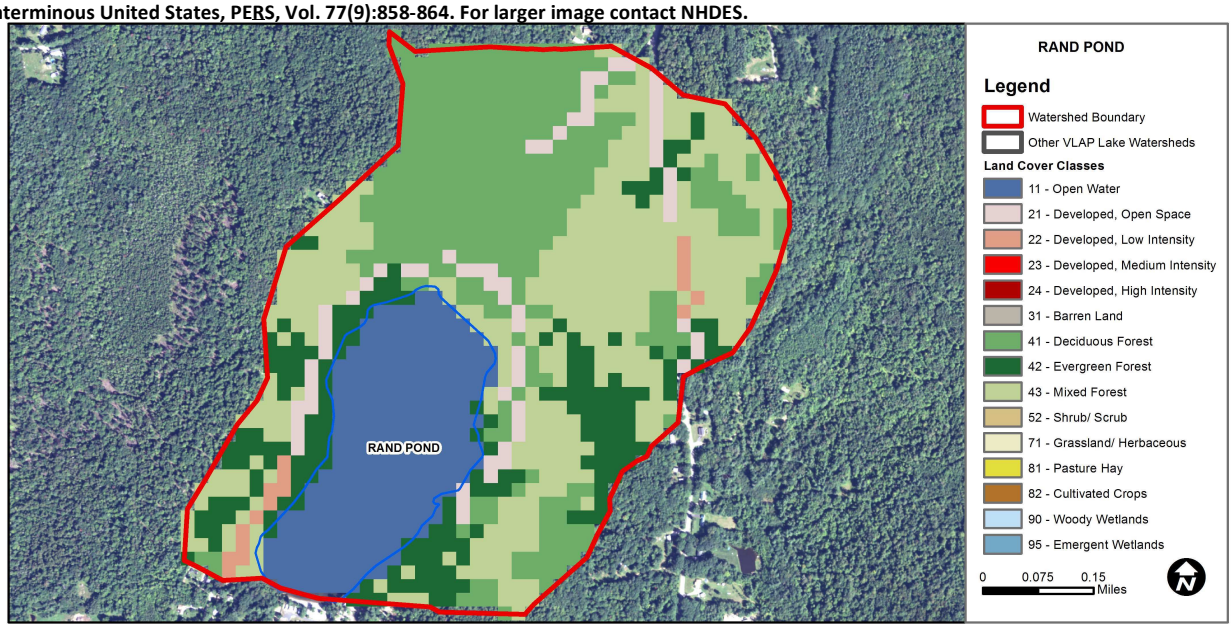
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

RAND POND - PUBLIC WAY BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.8	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.5	Deciduous Forest	28.43	Pasture Hay	0
Developed-Low Intensity	1.42	Evergreen Forest	15.09	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	32.02	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
RAND POND, GOSHEN, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels improved from 2011, were low throughout the summer and well below the NH lake median. Historical trend analysis indicates a stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity increased slightly as the summer progressed likely due to low water levels. Conductivity is slightly greater than the NH lake median.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels remained low throughout the summer and were below the NH lake median. Historical trend analysis indicates epilimnetic phosphorus tends to fluctuate from year to year. Hypolimnetic phosphorus was slightly greater than the NH lake median likely due to natural processes.
- **TRANSPARENCY:** Transparency improved from 2011 and was greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Deep spot turbidity was relatively low throughout the summer. Inlet turbidity was elevated in June and July due to low flow conditions as noted in the field data sheets. Outlet turbidity was elevated in July and August due to low flow conditions as noted in the field data sheets.
- **PH:** pH levels have dropped below desirable ranges in the past.
- **RECOMMENDED ACTIONS:** Reminder: do not sample tributaries that are not flowing or have insufficient flow to collect a sample free of sediment and/or organic matter. Keep up the great work!

Table 1. 2012 Average Water Quality Data for RAND POND

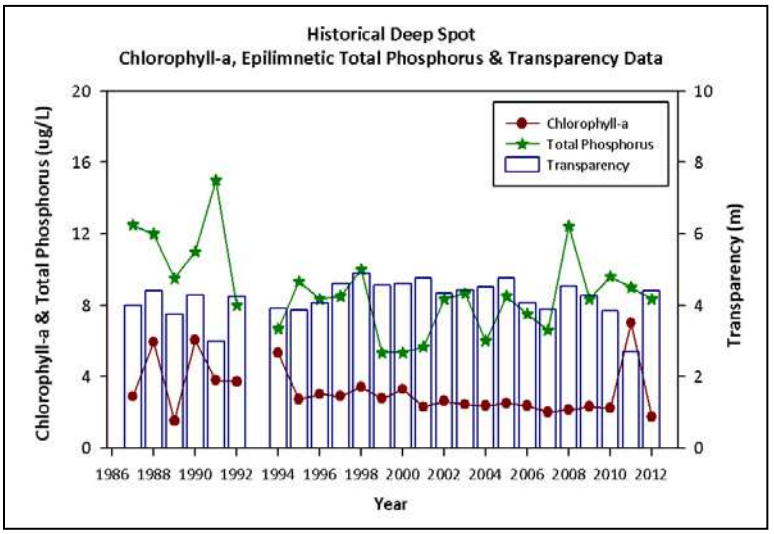
Station Name	Alk.	Chlor-a	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	ug/l	m		ntu	
					NVS	VS		
Deep Epilimnion	10.3	1.74	60.2	8	4.41	5.08	0.95	6.51
Deep Hypolimnion			61.1	13			1.39	6.50
Inlet			60.2	14			4.69	6.42
Outlet			64.0	15			8.11	6.32

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



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